



Manatee County Lena Landfill • Bradenton, Florida

“Automatic Disc Filter Preserves Land”

Located off Highway 64 in Bradenton Florida, the Lena Landfill in Manatee County has faced many obstacles in an effort to control their hazardous waste. Manatee County has a population of over 310,000 residents and collects over 350,000 tons of trash per year. Occupying over 330 acres of land, the landfill must bury the trash while preserving and protecting the environment in the surrounding area.



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One way of protecting the environment is to keep leachate, or hazardous liquids containing contaminants from decomposing trash within a landfill, from entering groundwater or surrounding rivers and ponds. To accomplish this, the landfill has a system to direct all run-off water and stormwater to a 120 acre settling pond. In 2005, Manatee County’s Lena Landfill was facing fines and penalties which had to be addressed.

The Florida EPA (Environmental Protection Agency) requires that all water discharged to stormwater ditches and drains meet a quality standard of 29 NTU (Nephelometric Turbidity Units) or less. Turbidity represents the use of reflected light to measure the size or density of solid particles present

in a liquid. The Lena Landfill was operating with a turbidity of 35-40 NTU. There were limited options on how to remedy the problem. One option was to build an additional settling pond, which would occupy 60 acres of the landfill’s valuable land. Since the landfill is considered a Class 3 hazardous landfill, the land is considered to be extremely valuable on a square foot basis.



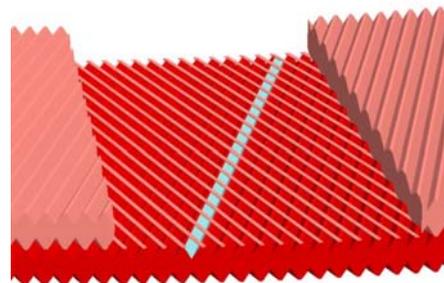
*Outlet Water Piping from Miller-Leaman’s
1,400 GPM Turbo-Disc Filtration System*

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Another option was to filter the water in the existing settling pond, preserving the unused acreage for future use to bury trash from the rapidly growing county.

To avoid millions of dollars of lost revenues, Manatee County contracted with the engineering firm PBS & J (Post, Buckley, Schuh & Jernigan) to develop a solution. David Weber of PBS & J specified the installation of an automatic disc filter system capable of handling two million gallons of water per day (2 MGD). The automatic Turbo-Disc Filter system was designed and manufactured by Miller-Leaman, Inc. of Daytona Beach, Florida. The system consists of (2) 24-pod systems, complete with booster pumps. As the water in the leachate, or settling pond rises to a particular level, submersible pumps activated by a float switch will engage. The water is then directed through the Turbo-Disc Filter systems and discharged into neighboring waterways, meeting the Florida EPA requirements. The filters can accommodate 1,400 gallons per minute (GPM) of contaminated particles and sediment.



Polypropylene Disc Media

Each filter pod is made up of a stack of polypropylene discs offering three-dimensional filtration capability. As the dirty water passes through the disc media, contaminated particles are trapped in the disc grooves allowing clean water to flow from the system's outlet. When the filter pods require cleaning, an automatic backwash cycle is initiated due to a pre-set differential-pressure measurement across the filter. During the backwash, the filtration system's booster pumps engage, producing the optimal pressure to thoroughly clean the disc media using a minimal amount of backwash water. Only (2) filter pods are sequentially backwashed at a time; therefore, the downstream flow is

uninterrupted during the duration of the backwash cycle.

Filtering existing stormwater retention ponds is a very cost-effective solution for other high value real estate developments, such as shopping centers and commercial properties, where the availability of land is scarce or non-existent.



Intake Water Piping to Turbo-Disc System with Booster Pumps